REMARKS/ARGUMENTS

Claims 1-25 are pending. Claims 1 and 11 have been amended to correct minor informalities. No new matter has been introduced.

Claims 1-4 and 6-10 stand rejected under 35 U.S.C. § 102(e) as being anticipated by the Applicants' admitted prior art (AAPA). Claims 11-14 and 16-20 stand rejected under 35 U.S.C. § 102(e) as being anticipated by the AAPA. Claims 5, 15, and 21-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the AAPA.

The Examiner alleges that the AAPA includes Fig. 1(b) which discloses performing a plasma-enhanced chemical vapor deposition (PECVD) process with tetraethylorthosilicate (TEOS) as a gas source to deposit an oxide layer 14 on the bottom bt and side wall sw of the trench structure 13 and the semiconductor substrate 1. Applicants note, however, that the oxide layer 14 is not formed by PECVD using TEOS. Instead, "as shown in Fig. 1(b), a silicon oxide layer 14 is formed on the silicon nitride layer 12 and on the bottom and sidewall of the trench structure 13 by the High Density Plasma Chemical Vapor Deposition (HDP-CVD) process." Specification at paragraph [0003] (page 1, lines 22-25).

"The thickness of the silicon oxide layer 14 formed by the HDP-CVD process is almost the same both on the bottom and sidewall. After the etching process is performed to remove the silicon oxide layer 14 on the sidewall of the trench structure 13, as shown in Fig. 1(c), only a portion of the silicon oxide layer 14 on the bottom of the trench structure 13 will remain and is defined as a bottom oxide layer 15." Specification at paragraph [0003] (page 1, lines 25-29). " However, the thickness of the bottom oxide layer typically is not enough after the above processes. In order to achieve the required thickness for the bottom oxide layer, the HDP-CVD process and the etching process need to be repeated again and again. Due to the high cost of the HDP-CVD process and the need for repeated processes, the conventional method requires substantial cost and time to form a bottom oxide layer." Specification at paragraph [0004] (page 1, line 30 to page 2, line 3). As pointed out in the specification, "the conventional HDP-CVD

process is limited by equipment and requires a higher cost. The methods according to embodiments of the present invention avoid these problems. Therefore, the present invention not only saves cost and time, but also allows the thickness of the bottom oxide layer to be controlled more easily." Specification at paragraph [0023] (page 6, lines 15-18).

Applicants respectfully submit that independent claims 1 and 11 are novel and patentable over the AAPA because, for instance, the AAPA does not teach or suggest performing a plasma-enhanced chemical vapor deposition (PECVD) process with tetraethylorthosilicate (TEOS) as a gas source to deposit an oxide layer on the bottom and sidewall of the trench structure and the semiconductor substrate, the oxide layer only partially filling the trench.

Applicants further assert that independent claim 21 is novel and patentable over the AAPA because, for instance, the AAPA does not disclose or suggest depositing an oxide layer on the bottom and sidewall of the trench by plasma-enhanced chemical vapor deposition (PECVD) process with tetraethylorthosilicate (TEOS) as a gas source at a temperature of about 440℃ to about 520℃, the oxide layer only partially filling the trench.

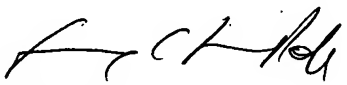
For at least the foregoing reasons, claims 1, 11, and 21, and claims 2-10, 12-20, and 22-25 depending therefrom are novel and patentable.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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